
REMARKS

This responds to the Office Action mailed on May 3, 2006, and the references cited therewith.

Claims 7 and 11 are amended; no claims are canceled and no claims are added, as a result, claims 1-38 are now pending in this application.

Claim Objection

Claims 7 and 11 were objected to because of a noted informality. The Examiner is thanked for a careful review of these claims. The claims have been amended, as indicated above, in the manner suggested by the Examiner.

§101 Rejection of the Claims

Claim 33 was rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter, specifically, to a disembodied data structure.

MPEP §2106 controls the determination as to what is to be considered functional and nonfunctional data for purposes of 35 USC §101. MPEP 2106(IV)(B)(1) states that when “functional descriptive material is recorded in some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since technology permits the function of descriptive material to be realized.” (Emphasis added.) The test is whether the claimed invention as a whole produces a useful and tangible result. There is no longer a technical arts test and the MPEP in 2106 specifically addresses instances where data structure claims are permissible.

The claim must be read as a whole and the pieces cannot be read in isolation to support a rejection. The law states the entire claim as a whole must be read and when this is done it is clear that there is function and interrelationship and it is clear that technology permits it to be realized as stated by MPEP 2106(IV)(B)(1). “If a claim defines a useful machine or manufacture **by identifying the physical structure** of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product. See, e.g., Lowry, 32 F.3d at

1583, 32 USPQ 2d at 1034-35; Warmerdam, 33 F.3d at 1361-62, 31 USPQ 2d at 1760.” MPEP §2106(IV)(B)(2)(a).

Here, claim 33 is tangible in that it is implemented in a machine-readable medium and it produces a concrete result in that it generates a command signal and backscatter signal. Therefore, the claim as a whole is tangible and produces a concrete result. Accordingly, it is statutory subject matter for which the patent laws were designed to protect.

Claim 33 defines a useful machine and defines of structural and functional interrelationships.

Claim 33 recites:

*A machine-readable medium storing a description of a circuit, said circuit comprising:
an oscillator, operatively to be coupled to a non-volatile memory, to receive an oscillator calibration value from the non-volatile memory, and to generate an oscillation frequency signal within an RFID tag utilizing the oscillator calibration value;
a tag controller to generate a command signal within the RFID tag, the command signal being based on command data received at the RFID tag in a received radio-frequency signal from an RFID reader; and
a modulator to backscatter modulate a transmitted radio-frequency signal in accordance with both the oscillation frequency signal and the command signal concurrently.*

Firstly, when taken as a whole, claim 33 clearly defines a useful machine by identifying the physical structure of a circuit, as stored on a machine-readable medium.

Secondly, it is clear that claim 33 is directed to a machine-readable medium that is encoded with a data structure (a description of a circuit) that defines the structural and functional interrelationships between the data structure (the description of the circuit) and computer software and hardware components (the machine-readable medium) that enable the data structure's functionality (the functionality of the described circuit) to be realized. Merely for example, the description of the circuit may be used by computer software and hardware components to manufacture a physical version of the described circuit, or to perform simulations of the described circuit. This provides a functional change and the claimed elements are interrelated with one another within the claim.

§102 Rejection of the Claims

Claims 1, 2-14, 16, 17-29, 31, and 32 were rejected under 35 U.S.C. § 102(b) for anticipation by Beigel et al. (U.S. 6,249,212).

To anticipate a claim, the reference must teach every element of the claim. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). It is not enough, however, that the prior art reference discloses all the claimed elements in isolation. Rather, “[a]nticipation requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

Claims 1, 16 and 31: Beigel does not describe each and every claim element.

Claim 1 recites:

A radio-frequency identification (RFID) tag including:

a non-volatile memory;

an oscillator, coupled to the non-volatile memory, to receive an oscillator calibration value from the non-volatile memory, and to generate an oscillation frequency signal within the RFID tag utilizing the oscillator calibration value;

a tag controller to generate a command signal within the RFID tag, the command signal being based on command data received at the RFID tag in a received radio-frequency signal from an RFID reader; and

a modulator to backscatter modulate a transmitted radio-frequency signal in accordance with both the oscillation frequency signal and the command signal.

(Emphasis Added)

Beigel provides that:

The demodulator 5 is connected across the transducer 3 and performs two functions. First, it determines whether a received reader carrier is modulated or not. Second, if the carrier is modulated and the source of the carrier is a control reader (i.e. a reader which can exercise control over the universal tag), the demodulator 5 extracts the data modulated on the carrier.

(Beigel, Col 6, ll. 17-22) (Emphasis Added).

If the voltage is modulated, the demodulator extracts and supplies the data to the control means.

The control means executes any commands contained in the extracted data. For example, the control means causes the modulator to drive the transducer with a predetermined one or more of the plurality of message waveforms if the transducer voltage is unmodulated. If, however, the transducer voltage is modulated and the proper command is contained in the extracted data, the control means causes the modulator to drive the transducer with one or more of the plurality of message waveforms specified by the extracted data.

(Beigel, Col 4, ll. 32-41) (Emphasis Added).

If the transducer signal is unmodulated, the microprocessor executes an emulation program stored in the EEPROM 33. The microprocessor causes each waveform generator 301, 303, and 305 to select the clock signals from those supplied by the clock generator having specified frequencies, phases, and amplitudes.

(Beigel, Col 12, ll. 15-20) (Emphasis Added)

Thus, Beigel only discloses (1) if the transducer voltage is unmodulated, driving a transducer with a predetermined message waveform or, in the alternative, (2) if the transducer voltage is modulated, driving the transducer with one or more of the plurality of message waveforms specified by the extracted data. Clearly the formation of the message waveforms generated by Beigel depends on whether the voltage is modulated. Beigel does not disclose “a modulator to backscatter modulate a transmitted radio-frequency signal in accordance with both the oscillation frequency signal and the command signal”, as recited in claim 1.

The Examiner is further referred to an example embodiment of the invention of claim 1, as described in paragraph 47 of the accompanying specification, with reference to Figure 9.

[0047] It will also be noted that the tag state machine 124 provides a command signal to the counter module 132, in the exemplary form of a multiplication signal 134, which controls the manner in which the counter module 132 generates respective clock signals. For example, a counter within the counter module 132 that is utilized to generate the modulator clock signal 136 may be controlled by the multiplication signal 134 to control the frequency of the modulator clock signal 136. In this embodiment, the frequency with which the modulator 112 modulates a backscatter radio-frequency signal is thus controlled at least

partially by the multiplication signal 134. As such, the modulation of the backscatter radio-frequency signal may be performed in accordance with both the oscillation frequency signal 130, that is determined by the calibration value 126, as well as the command signal, in the exemplary form of the multiplication signal 134, that provide input to the counter module 132. Of course, clock signals other than the modulator clock signal 136 may similarly be generated utilizing the frequency signal 130 and the multiplication signal 134.

From the above, it is apparent that the modulator concurrently modulates the transmitted radio-frequency signal in accordance with both an oscillation frequency signal (e.g., signal 130) and a command signal (e.g., a multiplication signal 134). There is no such concurrent use of both an oscillation frequency signal and a command signal described in Beigel.

Because Beigel fails to describe each and every element of claim 1, claim 1 and its dependent claims are patentable over Beigel and should be allowed.

Claim 16 recites “retrieving an oscillator calibration value from a non-volatile memory associated with the RFID tag” and “generating an oscillation frequency signal within an RFID tag, the generating of the oscillation frequency signal being performed utilizing the oscillator calibration value.” Claim 26 further recites “generating a command signal within the RFID tag, the command signal being based on command data received at the RFID tag in a second radio-frequency signal from an RFID reader” and “backscatter modulating the first radio-frequency signal in accordance with both the oscillation frequency signal and the command signal concurrently.” Therefore, claim 16 and its dependent claims are not anticipated by Beigel for at least the reasons provided above with respect to claim 1.

Claim 31 recites “a non-volatile memory means” and “first means, coupled to the non-volatile memory means, for receiving an oscillator calibration value from the non-volatile memory, and for generating an oscillation frequency signal within the RFID tag utilizing the oscillator calibration value.” Claim 31 further recites “second means for generating a command signal within the RFID tag, the command signal being based on command data received at the RFID tag in a received radio-frequency signal from an RFID reader” and “third means for backscatter modulating a transmitted radio-frequency signal in accordance with both the oscillation frequency signal and the command signal concurrently.” Therefore, claim 31 and its dependent claims are not anticipated by Beigel for at least the reasons provided above with respect to claim 1.

§103 Rejection of the Claims

Claims 3, 15, 18 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Beigel et al. as applied to claims 1 and 16 above, and in further view of Beauvillier et al. (U.S. 6,104,291). Applicants believe these claims to each be allowable by virtue of being dependent on a respective allowable independent claim.

Claims 33-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Beigel et al. in view of Segal (U.S. 6,496,972). Applicants again believe these claims to each be allowable by virtue of being dependent on a respective allowable independent claim.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney at 408-278-4042 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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This paper or fee is being filed on the date indicated above using the USPTO's electronic filing system EFS-Web, and is addressed to The Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.